

What is claimed is:

1. A bi-directional multi-point to point communication system, comprising:  
a hybrid fiber/coax distribution network having an optical fiber portion and a  
coaxial cable portion;

5 a head end terminal for downstream transmission of downstream control data  
and downstream telephony information in a first frequency bandwidth over the  
hybrid fiber/coax distribution network and for receipt of upstream telephony  
information and upstream control data in a second frequency bandwidth over the  
hybrid fiber/coax distribution network, the head end terminal including:

10 head end multicarrier modem means for modulating at least  
downstream telephony information on a plurality of orthogonal carriers in the  
first frequency bandwidth and for demodulating at least upstream telephony  
information modulated on a plurality of orthogonal carriers in the second  
frequency bandwidth;

15 head end controller means operatively connected to the head  
end multicarrier modem means for controlling transmission of the  
downstream telephony information and downstream control data and for  
controlling receipt of the upstream control data and upstream telephony  
information;

20 at least one service unit, each associated with at least one remote unit and  
operatively connected to the hybrid fiber/coax distribution network for upstream  
transmission of upstream telephony information and upstream control data in the  
second frequency bandwidth and for receipt of the downstream control data and  
downstream telephony information in the first frequency bandwidth, each service  
unit including:

25 service unit multicarrier modem means for modulating at least  
the upstream telephony information on at least one carrier orthogonal at the  
head end terminal to at least one other carrier of the second frequency  
bandwidth and for demodulating at least the downstream telephony

information modulated on at least a band of a plurality of orthogonal carriers  
in the first frequency bandwidth;

service unit controller means operatively connected to the  
service unit multicarrier modem means for controlling the modulation of and  
demodulation performed by the service unit multicarrier modem means.

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